DOCUMENT RESUME

ED 256 921 CE 041 456

| | |
|---|---|
| AUTHOR | Blakemore, Thomas; And Others |
| TITLE | A National Survey of Computer Use in Rehabilitation Facilities. Research and Training Center Research Report. |
| INSTITUTION | Wisconsin Univ.-Stout, Menomonie. Stout Vocational Rehabilitation Inst. |
| SPONS AGENCY | National Inst. of Handicapped Research (ED), Washington, DC. |
| PUB DATE | 85 |
| GRANT | G008300117 |
| NOTE | 66p. |
| PUB TYPE | Reports - Research/Technical (143) |
| EDRS PRICE | MF01/PC03 Plus Postage. |
| DESCRIPTORS | *Computer Oriented Programs; Computers; *Computer Software; *Disabilities; Institutions; Mental Retardation; Microcomputers; Minicomputers; Postsecondary Education; *Rehabilitation Centers; Residential Schools; Sheltered Workshops |
| IDENTIFIERS | *United States |

ABSTRACT

A survey of 3,581 rehabilitation facilities was conducted to determine their extent of computer use. Completed surveys were returned by 1,586 (44 percent) of the facilities, of which 864 (54 percent of the respondents) are using computers. The users indicated that computers are most frequently used for administrative purposes, whereas production and rehabilitation services uses are much less frequent. A number of statistical analyses were significant. It was found that the facilities that are currently using computers are much larger in terms of the number of clients they serve, the number of employees, and the size of their annual budgets. The users also provide a wider variety of rehabilitation services than the nonusers. Almost one-half of the current computer users own a microcomputer, one-quarter own a minicomputer, and only a few own a mainframe computer. There were sizeable differences in the costs of purchasing and operating these three classes of computers. However, there was no difference in terms of user satisfaction between the three classes of computer users. The results indicated that there is a substantial need for both customized software and for short-term training on how to use computers effectively in facilities. It was also found that the use and ownership of computers by facilities is likely to rise dramatically in the near future. Most of the facilities that will be acquiring a new computer system will be purchasing a microcomputer. (Author/KC)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED256921

Research Report

Research and Training Center

# A NATIONAL SURVEY OF COMPUTER USE IN REHABILITATION FACILITIES

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Thomas Blakemore, Ph.D.

Paul McCray, M.S.

Charles Coker, Ph.D.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CE 041 456

Stout Vocational Rehabilitation Institute

University of Wisconsin-Stout

Menomonie, WI 54751

# A NATIONAL SURVEY OF COMPUTER USE IN REHABILITATION FACILITIES

Thomas Blakemore, Ph.D.

Paul McCray, M.S.

Charles Coker, Ph.D.

1985

Research and Training Center
Stout Vocational Rehabilitation Institute
School of Education and Human Services
University of Wisconsin - Stout
Menomonie, Wisconsin 54751

# ABSTRACT

A survey of 3581 rehabilitation facilities was conducted to determine their extent of computer use. Completed surveys were returned by 1586 (44%) of the facilities, of which 864 (54% of the returnees) are using computers. The users indicated that computers are most frequently used for administrative purposes, whereas production and rehabilitation services uses are much less frequent.

A number of statistical analyses were significant. It was found that the facilities which are currently using computers are much larger in terms of the number of clients they serve, the number of employees, and the size of their annual budgets. The users also provide a wider variety of rehabilitation services than the nonusers. Almost one half of the current computer users own a microcomputer, one quarter own a minicomputer, and only a few own a main frame computer. There were sizeable differences in the costs of purchasing and operating these three classes of computers. However, there was no difference in terms of user satisfaction between the three classes of computer.

The results indicated that there is a substantial need for both customized software and for short-term training on how to effectively utilize computers in facilities. It was also found that the use and ownership of computers by facilities is likely to rise dramatically in the near future. Most of the facilities which will be acquiring a new computer system will be purchasing a microcomputer.

# ACKNOWLEDGEMENT

Support for this research was provided to the Research and Training Center at the University of Wisconsin - Stout through Grant No. G008300117 from the National Institute of Handicapped Research. The contents do not necessarily represent the interpretation or opinion of the National Institute of Handicapped Research or the Department of Education.

# TABLE OF CONTENTS


| | Page |
|---|---|
| ABSTRACT | i |
| ACKNOWLEDGEMENT | ii |
| LIST OF TABLES | iv |
| PREFACE | vii |
| INTRODUCTION | 1 |
| METHOD | 4 |
| RESULTS AND DISCUSSION | 5 |
| Characteristics of Facilities Which Do and Do Not Use Computers | 5 |
| Analyses of Facilities Which Currently Use Computers | 7 |
| Types of Computers in Use | 10 |
| Costs of Computer Purchase and Operation | 15 |
| Training Needs of Facilities | 19 |
| Software Needs of Facilities | 21 |
| Background Information About Facility Computer Use | 23 |
| Problems Related to Computer Use | 25 |
| Comparisons of Facilities With and Without Sheltered Employment Services | 30 |
| Comparisons of Facilities With and Without Medical Services | 33 |
| Analyses of Facilities Which Currently Do Not Use Computers | 39 |
| SUMMARY AND CONCLUSIONS | 46 |
| REFERENCES | 51 |
| APPENDIX A | 53 |

# LIST OF TABLES


| Table | | Page |
|---|---|---|
| 1 | Summaries of Analyses of Variance Comparing Computer Users and Nonusers on Number of Clients Served Annually, Number of Employees, and Size of Annual Budget | 6 |
| 2 | Chi Square Analyses of Frequency of Rehabilitation Services Between Users and Nonusers | 8 |
| 3 | Current Computer Use in Administrative, Production, and Rehabilitation Services Applications | 9 |
| 4 | Percentages of Facilities Which Own or Lease a Microcomputer, Minicomputer, or a Main Frame Computer | 12 |
| 5 | Comparison of Computer Use and Ownership in Facilities - 1981 versus 1983/1984 | 13 |
| 6 | The Brand and Model of the Computers Most Frequently Used in Rehabilitation Facilities and the Number of Facilities Using Them | 14 |
| 7 | Mean Costs of Hardware, Software, and Annual Operating Expenses for Users of Microcomputers, Minicomputers, and Main Frame Computers and Timeshare/Service Bureau Users | 16 |
| 8 | Chi Square Analyses of Frequency of Rehabilitation Services Between Facilities Which Either Own/Lease a Computer Versus Those With a Timeshare/Service Bureau Arrangement | 18 |
| 9 | Frequencies of All Users and Those With Only Microcomputers, Minicomputers, or Main Frame Computers Indicating a Need for Short-Term Training | 20 |
| 10 | Percentages of All Facilities and Those Using Only Microcomputers, Minicomputers, or Main Frame Computers Indicating a Need for Customized Software | 22 |
| 11 | Percentages of Facilities With Micro-, Mini-, and Main Frame Computers Which Had Employees or Nonemployees Develop Custom Programs | 24 |
| 12 | Mean Ratings of the Usefulness of Computers for Various Functions. | 26 |
| 13 | Percentages of All Users and Those With Only Micro-, Mini-, or Main Frame Computers Experiencing Various Computer Related Problems | 27 |
| 14 | Chi Square Analyses Comparing Frequency of Computer Related Problems Experienced by Facilities Which Own/Lease a Computer Versus Those Which Have a Timeshare/Service Bureau Arrangement | 29 |

| Table | | Page |
|---|---|---|
| 15 | Chi Square Analyses Comparing Frequency of Computer Use for Various Applications By Facilities Which Do and Do Not Provide Sheltered Employment Services | 31 |
| 16 | Chi Square Analyses Comparing Facilities Which Do and Do Not Provide Sheltered Employment on the Frequency With Which They Provide Other Rehabilitation Services | 34 |
| 17 | Summaries of Analyses of Variance Comparing Medical and Nonmedical Facilities on Number of Clients Served Annually, Number of Employees, and Size of Annual Budget | 36 |
| 18 | Mean Costs of Hardware, Software, and Annual Operating Expenses for Medical and Nonmedical Facilities | 37 |
| 19 | Chi Square Analyses Comparing Frequency of Computer Use For Different Applications by Medical and Nonmedical Facilities | 38 |
| 20 | Chi Square Analyses of Frequency of Rehabilitation Services Provided by Medical and Nonmedical Facilities | 40 |
| 21 | Reasons Why Facilities May Not or Will Not Be Purchasing a Computer Within Next 18 Months | 41 |
| 22 | Anticipated Computer Use in Administrative, Production, and Rehabilitation Services Applications by Nonuser Facilities Which Will or May Purchase a Computer | 43 |
| 23 | Anticipated Expenditures for Hardware, Software, Training, and Consultation by Facilities Which Definitely Will or May Purchase a Computer | 44 |
| 24 | Anticipated Sources of Revenue for Facilities Which Definitely Will or May Purchase a Computer | 45 |
| 25 | Summaries of Analyses of Variance Comparing "Yes/Maybe" and "No" Groups on Number of Clients Served Annually, Number of Employees, and Size of Annual Budget | 47 |
| 26 | Chi Square Analyses of Frequency of Rehabilitation Services Among Nonusers Which May and Will Not Purchase a Computer System Within the Next 18 Months | 48 |

## PREFACE

The Research and Training Center at the University of Wisconsin - Stout is one of several national centers funded by the National Institute of Handicapped Research to conduct research and training related to improving the lives and well being of handicapped people. Each of the centers has a unique focus. The Center at U.W. - Stout is the only one which addresses issues directly related to the role and function of vocational rehabilitation facilities. One of the primary areas of the Center is to conduct research and training designed to improve the rehabilitation services provided by rehabilitation facilities (e.g., vocational evaluation, work adjustment training, and placement). A second area is to conduct activities which will lead to the improvement of the economic viability of those facilities. The third area of research examines alternate models to the current vocational rehabilitation facility model.

This paper will present the findings from a recent research project which investigated a number of aspects of computer use. The project consisted of a two-phase survey of a substantial number of rehabilitation facilities in this country, however, the paper deals primarily with the results of the first phase of the study. Much of the information gathered in the second phase is contained in the National Directory of Rehabilitation Facilitities Using Computers (McCray & Blakemore, 1985). This project impacts equally on all of our research areas. It has implications for improving the economic viability of facilities since computers are potentially powerful tools for increasing productivity. The project also relates to the improvement of rehabilitation services provided by facilities in that computers could be used to increase both the efficiency and variety of services provided to handicapped people. Finally, it may suggest alternate models based on extensive use of computers.

# INTRODUCTION

Since they first became commercially available some three decades ago, there has been a virtual explosion in the use of computers to enhance business and industrial operations. Today, computers are used in a wide variety of administrative applications including such things as accounting, budgeting, billing, payroll, and handling mailing lists. Computers are also used in a large number of industrial applications, such as, monitoring production lines, controlling machinery, and tracking inventory levels. It appears that computers can now be used to assist in virtually every area of business operations.

In the early stages of their development, computers were used almost exclusively by large businesses, universities, or government agencies. The great expense and difficulty in operating those machines prevented their use by smaller businesses such as rehabilitation facilities. Advances in technology in recent years have resulted in dramatic decreases in the cost of computers and increases in their use. Now, computer systems capable of handling the needs of small businesses are available at prices such businesses can afford.

There is a fairly sizeable and rapidly growing literature on the use of computers with the handicapped, but there has been relatively little written about the use of computers in rehabilitation facilities, per se. For example, Nave, Browning, and Carter (1983) published an annotated bibliography on the use of computers in rehabilitation and special education but only two articles of the 191 they reviewed dealt specifically with the use of computers in rehabilitation facilities. The West Virginia Research and Training Center

(Eighth Institute on Rehabilitation Issues, 1981) published a document about the use of computers in rehabilitation but that manuscript focused primarily on the use of computers by state vocational rehabilitation agencies. Growick (1983) also reviewed the uses of computers in rehabilitation but, again, the majority of the articles he examined were most relevant for state vocational rehabilitation agencies.

One of the few articles written specifically for facilities was a monograph by Cimler and Henderson (1979) which discussed a variety of potential uses of microcomputers in rehabilitation facilities including such areas as administration, personnel, rehabilitation services, and production. Pogorelc (1982) also discussed potential uses of computers in rehabilitation facilities and presented an outline of the steps to follow when purchasing a computer system. In addition, three other articles have discussed existing and potential uses of computers in the provision of rehabilitation services to the people being served within facilities. In the first of these, Cole (1983) described three programs he has developed for use with an inexpensive microcomputer to assist him in such activities as calculating client payroll and in monitoring staff and client activity. Crimando and Sawyer (1983) discussed a number of potential uses of computers in the provision of work adjustment services. These included computer assisted instruction, skill training, service planning, and client progress tracking. Finally, Spence, Woods, and Young (1984) described a computer package which they developed for use in Individualized Program Planning.

Two previous surveys of computer use in rehabilitation facilities have been conducted. Miller (1981) sent a brief questionaire to approximately 2400 facilities throughout the country. His instrument asked facility personnel if they used computers, and, if so, whether they owned or leased the

machine or used a service bureau (a company with a computer which provides data processing services for a fee). He found that about 51% of his 828 respondents were using a computer. The most frequent form of use was a service bureau which 58% of the users employed. Only 31% (135) of the users owned their computer, while 11% (47) leased them. Approximatly 12% (53) of the users had a microcomputer at that time. In a second study, Leicht (1982) used a more comprehensive questionnaire to survey 39 facilities in the state of Wisconsin. She found that the most prevalent use of computers was for administrative functions such as calculating the payroll, maintaining mailing lists, etc. She also found a great need for information concerning computer use in facilities. For instance, 80% of the respondents who were using computers desired information on useful commercially developed programs.

Leicht's findings point out that one of the themes which appears frequently in the literature dealing with the use of computers in rehabilitation facilities is that there is a great need for information about how to effectively and efficiently use them. Indeed, most of the papers cited above which deal with the use of computers in facilities (e.g., Cimler and Henderson, 1979; Pogorelc, 1982) were attempts to provide users and potential users with such information. In a similar vein, the survey discussed below was an attempt to gather and disseminate information on how to enhance the use of computers in rehabilitation facilities. The specific goals of the project were to: 1) identify the ways in which computers are currently being used in rehabilitation facilities and additional ways in which they could be used; 2) identify the information needs of facilities (e.g., books, articles, training, etc.) that could enhance the ability of facilities to effectively use computers; 3) identify the various types of computer equipment and programs that are being used in facilities and the costs involved in

purchasing and operating such items; and 4) to develop a National Directory of Rehabilition Facilities Using Computers which could potentially serve as the basis of a user's network.

## METHOD

The target audience of this survey included those facilities which offer any of a variety of (re)habilitation services to handicapped individuals. The majority of those facilities would be considered traditional not-for-profit rehabilitation facilities. Also included in the sample, however, were a number of schools, universities, and hospitals with rehabilitation programs. The questionnaire, included in Appendix A, was initially mailed to all 4181 facilities on the Research and Training Center's mailing list. There were 962 completed surveys in response to this first mailing and 600 "dead letters" returned by the Post Office as undeliverable. Three months after the initial mailing, a second mailing was sent to all facilities for which a completed survey or a dead letter had not been received. An additional 624 completed surveys were received from the second mailing, for a total of 1586 returns which equals a response rate of 44% of the 3581 facilities which received the questionnaire.

# RESULTS AND DISCUSSION

The survey questions asked primarily about frequency of computer use but also asked for brand names and models of computers, the purchase costs of computer equipment and software, the costs of operating computers, the number of clients and employees in facilities, and the annual operating budgets of those facilities. The data analyses consisted of determining the frequencies of responses to various questions and the use of crosstabulations, chi-square tests, and analyses of variance where appropriate to determine whether group differences were statistically significant.

## CHARACTERISTICS OF FACILITIES WHICH DO AND DO NOT USE COMPUTERS

Of the the 1586 facilities which responded to the survey, 864 (54%) are currently using computers, whereas 722 (46%) are not using them. Users may be timesharing, using a data processing bureau, or own or lease a computer(s). The percentage of users in this study (54%) was quite similar to the 51% that Miller (1981) found in his survey of users. It was surprising not to have seen a more substantial increase in the use of computers during the interval between the two studies, especially considering the increased availability of low cost microcomputers. As will be discussed below, however, there has been a dramatic increase in ownership (as opposed to lease/rental, etc.) of computers among users.

The relevant data were examined to determine how facilities that do (Users) and do not (Nonusers) have computers differ. The initial set of analyses examined the size of the facilities in terms of the number of clients served annually, the number of employees, and the annual budgets of the facilities. Table 1 presents a summary of the three analyses of variance

TABLE 1

Summaries of Analyses of Variance Comparing Computer Users and Nonusers on Number of Clients Served Annually, Number of Employees, and Size of Annual Budget

| Source | Group Mean | df | Mean Squares | F | p |
|---|---|---|---|---|---|
| **Number of Clients** | | | | | |
| Between | | 1 | 110,641,551 | 27.71 | <.001 |
| Users | 225 | | | | |
| Nonusers | 514 | | | | |
| Within | | 1205 | 3,992,838 | | |
| **Number of Employees** | | | | | |
| Between | | 1 | 3,121,645 | 79.23 | <.001 |
| Users | 154 | | | | |
| Nonusers | 51 | | | | |
| Within | | 1205 | 39,397 | | |
| **Annual Budget** | | | | | |
| Between | | 1 | 882,109,816 | 133.39 | <.001 |
| Users | $2,820,495 | | | | |
| Nonusers | $1,096,821 | | | | |
| Within | | 1205 | 6,613,013 | | |

which were calculated to compare the user and nonuser groups on these variables.

As can be seen from examining Table 1, there is a very substantial and statistically significant difference between users and nonusers on each of the three measures of facility size. Facilities which use computers serve, on the average, twice as many clients annually, have three times as many employees, and have annual budgets which are almost three times as large as do facilities which do not use computers.

A second set of analyses was calculated to determine whether the users and nonusers differ in the type of services they provide. Table 2 presents the percentages of each group which provide various services and the results of Chi Square ( $\chi^2$) tests that were performed on these data to determine whether any differences are significant. As is evident, significantly more of the Users provide each of the services listed in the table than do the Nonusers. The results of this set of analyses, taken in conjunction with the findings of the analyses listed in Table 1, indicate that it is the larger, more affluent and comprehensive facilities which are currently using computers.

## ANALYSES OF FACILITIES WHICH CURRENTLY USE COMPUTERS

One of the primary interests of this survey related to how computers are currently being used in rehabilitation facilities in three areas: administration, production, and rehabilitation services. Table 3 presents the percentages of current users employing computers to perform various functions in each of these broad areas. As is evident from reading the table, the heaviest uses of computers by facilities at this time is for various administrative purposes. The most heavily used of these is accounting (70%), with bookkeeping and staff payroll used by more than 60%

TABLE 2

Chi Square Analyses of Frequency of Rehabilitation Services Between Users and Nonusers

| Rehabilitation Service | N(%) of Users | N(%) of Nonusers | Chi Square | p |
|---|---|---|---|---|
| Vocational/Work Evaluation | 613(71) | 501(58) | 27.99 | <.001 |
| Psychological Testing | 493(57) | 213(30) | 10.83 | <.001 |
| Personal/Social Adjustment | 624(72) | 412(57) | 40.34 | <.001 |
| Work Adjustment Training | 604(70) | 415(58) | 26.79 | <.001 |
| Occupational Skill Training | 497(58) | 242(34) | 91.53 | <.001 |
| On-The-Job Training | 476(55) | 283(39) | 39.82 | <.001 |
| Job-Seeking-Skills Training | 554(64) | 357(49) | 34.99 | <.001 |
| Job Placement Services | 548(63) | 336(47) | 45.47 | <.001 |
| Sheltered Employment | 488(57) | 340(47) | 13.89 | <.001 |
| Work Activities | 541(63) | 386(54) | 13.57 | <.001 |
| Independent Living Training | 487(56) | 307(43) | 30.16 | <.001 |
| Daily Living Skills Training | 566(66) | 369(51) | 30.16 | <.001 |
| Recreation | 498(58) | 324(45) | 25.92 | <.001 |
| Medical Services | 401(46) | 179(25) | 79.92 | <.001 |
| Residential | 334(39) | 171(24) | 40.84 | <.001 |

TABLE 3

Current Computer Use in Administrative, Production, and Rehabilitation Services Applications

| ADMINISTRATIVE Application | % | PRODUCTION Application | % | REHABILITATION SERVICES Application | % |
|---|---|---|---|---|---|
| Accounting | 70%* | Production Control | 12% | Assessment (Vocational Evaluation, Psychological Testing, etc.) | 25% |
| Bookkeeping | 64% | Production Scheduling | 10% | | |
| Word Processing | 50% | Inventory | 26% | Adjustment (Personal, Social, Work) | 13% |
| Mailing Lists | 53% | Motion-Time Study | 6% | | |
| Spreadsheets (Business Projections) | 38% | Contract Bidding | 9% | Residential | 10% |
| | | Cost Control | 22% | Independent Living Training | 9% |
| Staff Payroll | 61% | Production Records/Reports | 31% | Job Seeking Skill Training | 16% |
| Client Payroll | 48% | Other | 4% | Other | 11% |
| Program Evaluation | 34% | | | | |
| Other | 21% | | | | |

* Percentage of current Users employing computers for this application.

of the facilities. The use of spreadsheets and program evaluation were the least often cited Administrative functions (38% and 34%, respectively). These data suggest that most of the facilities tend to use computers for more than one Administrative function.

The percentage of use of computers for Production functions is considerably lower than for Administrative ones. The most heavily used function in this category was Production Record Keeping/Reporting which is used by 31% of the facilities, followed by Inventory (26%) and Cost Control (22%). Computers were used for the remaining Production functions by 12% or less of the facilities.

The most frequent use of computers for providing Rehabilitation Services is for Assessment (25%), which includes both Vocational and Psychological Assessment. Use of computers for Personal, Social, or Work Adjustment, Residential Programs, Independent Living Training, and Job Skill Training ranges from 9% to 16%. Thus, the use of computers for production and rehabilitation functions is much less widespread than for administrative functions.

**TYPES OF COMPUTERS IN USE**

Another set of analyses examined information related to the types of computers facilities currently use. The first of these examined which class of computer - microcomputer, minicomputer, or main frame computer - they use. For the purposes of this study, microcomputers (sometimes called "personal computers") are the most inexpensive and least powerful of the three classes of computers in terms of memory and size. They typically are single user machines, although some can handle a limited number of users simultaneously. A minicomputer is normally capable of handling several users simultaneously and is considerably faster and has more memory capacity

than a microcomputer. The most expensive and powerful class of computers are "main frames" which are faster and have considerably more memory than the other classes. Table 4 presents the percentages of current users that either own or lease computers in each of the three categories just mentioned. As can be seen, almost half of the users own a microcomputer, whereas about one quarter own a minicomputer and very few own a main frame computer. In addition, 19% of the facilities which use computers stated that they use timesharing and 38% use a service bureau arrangement. With timesharing one rents time on someone elses computer ,whereas, with a service bureau one typically pays someone else to perform one's data processing activities.

There appears to have been a dramatic increase in the number of facilities which own computers, particularly microcomputers, compared to two and one half years ago when Miller (1981) conducted his survey. The data presented in Table 5 on page 13 illustrate the changes in the patterns of computer use since 1981. Miller found that only 31% of the users owned a computer whereas 66% of the users in the current study own at least one. He also found that 58% of his users employed a service bureau or timesharing service while only 48% of the users in the present study relied on such an arrangement. Most importantly, only 12% of Miller's users had a microcomputer. This is in sharp contrast to the present study which found that 47% of the users have one.

Users were also asked to list the brands and models of their computers. There were over 90 separate brands or models listed among the returns. The twenty most frequently cited models and the number of facilities using them are listed in Table 6. It can be seen that the Apple II is the most frequently cited computer, followed by the Radio Shack

TABLE 4

Percentages of Facilities Which Own or Lease
a Microcomputer, Minicomputer, or a Main Frame Computer

| Type of Computer | Own | Lease |
|---|---|---|
| Microcomputer | 47% | 7% |
| Minicomputer | 23% | 7% |
| Main Frame | 7% | 14% |

Table 5

Comparison of Computer Use and Ownership in Facilities - 1981 versus 1983/1984

| Type of Use/Ownership | Miller's 1981 Findings | Current Findings 1983/84 |
|---|---|---|
| Facilities owning computer of any type (micros, minis, main frames) | 31% | 66% |
| Facilities using Service Bureau/Time Share | 58% | 48% |
| Microcomputer owners | 12% | 47% |

TABLE 6

The Brand and Model of the Computers Most Frequently Used in Rehabilitation Facilities and the Number of Facilities Using Them

| Computer Brand/Model | # of Users |
|---|---|
| Apple II | 224 |
| Radio Shack (all models) | 138 |
| IBM Personal Computer | 78 |
| IBM System 34/38 | 67 |
| IBM 360/370 | 52 |
| ADP 1750 | 29 |
| Digital Equipment PDP 11 | 23 |
| Commodore 64 | 21 |
| Burroughs | 21 |
| Datapoint | 18 |
| Hewlett Packard 3000 | 16 |
| Texas Instruments | 15 |
| Compaq | 15 |
| Wang | 14 |
| Qantel System 20 | 12 |
| Televideo | 11 |
| Altair 8800 | 11 |
| Franklin Ace | 10 |
| Basic IV | 10 |
| Vector 3 | 9 |

(several microcomputer models) and the IBM Personal Computer. The fourth and fifth most frequently cited models are the IBM System 34, which is a minicomputer and the IBM 360, which is a main frame computer.

Approximately 52% of the respondents that own a computer have only one computer, 23% have two computers, and the remainder have more than two computers. Five percent of the respondents indicated that they have nine or more computers. The vast majority of the latter group are educational institutions.

## COSTS OF COMPUTER PURCHASE AND OPERATION

A number of questions were asked which related to the costs of purchasing and operating a computer system. The facilities were asked for the total hardware, software (programs), and annual operating expenses for their computer systems. The hardware costs include peripheral devices such as printers, monitors, modems, etc. The costs for annual operating expenses include personnel costs. Separate analyses were conducted for facilities which have only microcomputers, only minicomputers, only a main frame computer, and for those with either timesharing or a service bureau only. This enabled a comparison of the relative costs of each class of computer system and of using timesharing or a service bureau. Table 7 presents the means for the hardware and software purchasing costs and the annual operating costs. As can be seen, there are sizeable differences in the costs of the different classes of computer systems. As the size and power of the machines go up, the costs also increase dramatically. One reason for the greater expense of using minicomputers and main frame computers is that a computer specialist is needed to run these systems thus adding considerable expense to their operation. It can also be seen in the table that the purchase costs for timeshare/service bureau users are comparable to those of

TABLE 7

Mean Costs of Hardware, Software, and Annual Operating Expenses for Users of Microcomputers, Minicomputers, and Main Frame Computers and Timeshare/Service Bureau Users

| Type of Computer Use | N | Type of Expense | | |
|---|---|---|---|---|
| | | Hardware Cost | Software Cost | Operating Cost/Year |
| Microcomputers | 231 | $15,379 | $2,304 | $8,683 |
| Minicomputers | 86 | $61,021 | $11,137 | $16,320 |
| Main Frame | 15 | $453,283 | $106,966 | $191,214 |
| Timeshare/Service Bureau | 134 | $14,667 | $5,694 | $14,515 |

microcomputer users whereas the operating expenses are more similar to those of minicomputer users.

Further comparisons were made between facilities which use either Timesharing/Service Bureau arrangements and those which Own or Lease a computer. There were 134 facilities using only Timesharing/Service Bureau and 448 facilities which either owned or leased one computer. Facilities which have a combination of these arrangements were excluded from these analyses.

There were some interesting differences found between these two groups. First, there were significant differences in the way these groups use computers as can be seen in Table 8. It can be noted that for 12 of the 18 uses listed in the table, the Own/Lease group has a higher percentage of useage of computers. In only two instances, Staff Payroll and Client Payroll, did the Timeshare/Service Bureau group have a significantly higher percentage of useage. Note that there are some very sizeable differences between these groups in the extent of useage of computers for various functions (e.g., Word Processing, Spreadsheets). These findings seem to suggest that Timesharing and Service Bureau arrangements have 1) more limited services to offer, and 2) that they tend to specialize in handling payrolls.

Another finding of interest was that the Timesharing/Service Bureau group has a significantly smaller percentage of facilities in which an employee has developed a computer program for use in the facility. This, no doubt, reflects the fact that the agency from which timesharing/service bureau services are purchased would normally be responsible for program development for their customers, particularly in the case of service bureaus.

TABLE 8

Chi Square Analyses of Frequency of Rehabilitation Services Between Facilities Which Either Own/Lease a Computer Versus Those With a Timeshare/Service Bureau Arrangement

| Computer Application | N(%) Own/Lease | N(%) Timeshare/ Serv Bureau | $\chi^2$ | p |
|---|---|---|---|---|
| **Administrative Uses** | | | | |
| Accounting | 309(69%) | 86(64%) | .99 | >.05 |
| Bookkeeping | 282(63%) | 72(54%) | 4.18 | <.05 |
| Word Processing | 228(51%) | 25(19%) | 44.46 | <.001 |
| Mailing Lists | 246(55%) | 34(30%) | 26.38 | <.001 |
| Spreadsheets | 166(37%) | 19(14%) | 25.31 | <.001 |
| Staff Payroll | 246(55%) | 105(78%) | 22.17 | <.001 |
| Client Payroll | 211(47%) | 88(66%) | 14.59 | <.001 |
| Program Evaluation | 148(33%) | 23(17%) | 12.88 | <.001 |
| **Production Uses** | | | | |
| Production Control | 63(14%) | 12(9%) | 2.04 | >.05 |
| Production Scheduling | 45(10%) | 7(5%) | 3.76 | >.05 |
| Inventory | 130(29%) | 17(13%) | 14.57 | <.001 |
| Motion-time Study | 36(8%) | 4(3%) | 3.58 | >.05 |
| Contract Bidding | 45(10%) | 4(3%) | 6.67 | <.05 |
| Cost Control | 99(22%) | 21(16%) | 2.02 | >.05 |
| Production Records/ Reports | 148(33%) | 38(28%) | .85 | >.05 |
| **Rehabilitation Services Uses** | | | | |
| Assessment (Vocational/ Psychological) | 112(25%) | 9(7%) | .18 | >.05 |
| Adjustment(Personal/ Social) | 63(14%) | 5(4%) | 10.67 | <.001 |
| Independent Living Training | 40(9%) | 8(6%) | 1.04 | >.05 |
| Job Skill Training | 72(16%) | 8(6%) | 8.89 | <.01 |

## TRAINING NEEDS OF FACILITIES

A number of analyses were performed to determine the training and software needs of current computer users. Table 9 lists the training needs of all current users and those needs broken down by class of computer (e.g., microcomputer, etc.). For the latter analyses, only facilities which have only one class of computer were included. As can be seen by examining the column for all users, the most frequently cited need was for training programs dealing with computer uses and applications, followed by programs on computer system management, then computer programming, and finally, computer selection. The same order of training needs held for the microcomputer and main frame users also. For minicomputer users, however, the need for training in computer system management was slightly higher than for training in the uses and applications of computers. The only significant difference found between the three groups was that a smaller proportion of minicomputer users had a need for training in computer uses and applications than did either the microcomputer or main frame computer users.

Some additional analyses concerning the training and information needs of facilities using computers were also examined. Sixty seven percent of all current users indicated a need for a rehabilitation facility computer user's network for the exchange of information about computer use. Sixty six percent also see a need for an introductory level handbook on the use of computers in rehabilitation. The respondents were also asked to rank the importance of various computer related information needs. The results indicated that the highest priority need for facilities was for customized software programs tailored to the needs of rehabilitation facilities, followed by the need for short term training, then an introductory handbook, and, finally, a computer user's network.

TABLE 9

Frequencies of All Users and Those With Only Microcomputers, Minicomputers, or Main Frame Computers Indicating a Need for Short-Term Training

| Type of Training Needs | Type of Users | | | |
|---|---|---|---|---|
| | N(%) Micro-computer | N(%) Mini-computers | N(%) Main Frame Computers | N(%) All Users |
| Computer Selection | 60(26%) | 21(24%) | 5(32%) | 268(31%) |
| Computer Uses/ Applications | 169(73%) | 50(58%) | 11(74%) | 570(66%) |
| Computer Programming | 134(58%) | 45(52%) | 8(53%) | 467(54%) |
| Computer System Management | 148(64%) | 52(60%) | 9(63%) | 553(62%) |

Two other training related questions addressed the need for short term training programs on computer use by rehabilitation facilities. In response to the first of these, 50% of the respondents indicated that the training programs in their locale were adequate for meeting their training needs. For the second question, 65% of the respondents indicated that they would be willing to send staff to short term training sessions on computer use in rehabilitation.

Comparisons of facilities which own/lease a computer versus those with a timeshare/service bureau arrangement indicated that the latter group had a significantly higher percentage of facilities indicating a need for training in computer selection and computer applications (both $\chi^2$s > 6.41, $p < .02$). This group also perceived a greater need for software customized for Administrative purposes ($\chi^2 = 3.94$, $p < .05$) and for Production uses ($\chi^2 = 11.31$, $p < .01$). The latter finding seems quite consistent with the information in Table 8 indicating that facilities which use timesharing or service bureau arrangements perform fewer computer functions than other facilities using computers. These findings suggest that timesharing services and service bureaus are much less likely to have specialized computer programs which meet the unique needs of rehabilitation facilities. This is certainly not to suggest that such services are inadequate, however, since substantial numbers of these facilities do use computers for many of the functions listed in Table 8.

**SOFTWARE NEEDS OF FACILITIES**

The need for software written specifically for rehabilitation facilities was also examined. The results of those analyses are presented in Table 10 for all users and are also broken down by the class of computer the facility uses. The most frequently cited need for customized software

TABLE 10

Percentages of All Facilities and Those Using Only Microcomputers, Minicomputers, or Main Frame Computers Indicating a Need for Customized Software

| Type of Software Needed | Micro-computers | Mini-computers | Main Frame Computers | All Users |
|---|---|---|---|---|
| Administrative Uses | 72% | 64% | 74% | 66% |
| Production Uses | 59% | 61% | 32% | 58% |
| Rehabilitation Services uses | 73% | 77% | 79% | 70% |
| Residential Program Uses | 41% | 37% | 37% | 40% |

was in the area of rehabilitation services uses (e.g., in evaluation, placement, etc.), followed by the need for administrative programs, production programs, and, finally, software for residential programs. The only difference between the facilities which have different classes of computers is that significantly fewer main frame users perceive a need for software customized for use in production ( $\chi^2 = 6.03$, $p < .05$). This may be because the main frame users were less likely to have a production component.

## BACKGROUND INFORMATION ABOUT FACILITY COMPUTER USE

The next series of analyses examined a number of questions related to the "history", so to speak, of computer use in each facility. These included questions seeking to determine if the facility has had any customized software written, the usefulness of computers for various purposes, and any problems the users may have encountered in the use of computers. Comparisons of facilities using only microcomputers, only minicomputers, or only main frame computers were made because it was felt that the type of computer system a facility has might influence these factors.

It was found that significantly fewer facilities which have only microcomputers used a consultant when either purchasing or using their system (35% vs 50% vs 53% for microcomputers, minicomputers, and main frame computers, respectively). Conversely, facilities with only microcomputers were more likely to use volunteers in the selection and running of their systems (39% vs 30% vs 16%, respectively).

Table 11 presents the percentage of microcomputer, minicomputer, and main frame users who had either employees or nonemployees develop computer programs for administrative, production, rehabilitation services, or

TABLE 11

Percentages of Facilities With Micro-, Mini-, and Main Frame Computers Which Had Employees or Nonemployees Develop Custom Programs

| Type of Program | Type of Computer System | | | | | |
|---|---|---|---|---|---|---|
| | Micro | | Mini | | Main Frame | |
| | Employee | Nonemployee | Employee | Nonemployee | Employee | Nonemployee |
| Administrative | 31% | 27% | 35% | 55% | 47% | 37% |
| Production | 13% | 13% | 19% | 38% | 21% | 26% |
| Rehab Services | 20% | 13% | 19% | 23% | 21% | 21% |
| Residential | 6% | 5% | 10% | 12% | 5% | 11% |

residential uses. As can be seen, the facilities with only main frames were more likely to have an employee develop a computer program for administrative uses. Microcomputer users were significantly less likely to have an employee develop a program for Production uses. Microcomputer users were also less likely to have had an outside programmer develop programs for administrative, production, rehabilitation services, and residential program purposes. It seems likely that this was because of the expense involved in hiring someone to develop such programs.

The usefulness of computers in several areas was rated by current users. As can be seen in Table 12, the most highly rated use of computers was for administrative functions, followed by clerical functions, rehabilitation services, production, and program evaluation. The lowest rated use of computers was for residential program functions. As noted above, the latter is an area in which computers are used by only a relatively small percentage of facilities at present. Comparisons of micro-, mini-, and main frame computer users indicated a difference in the ratings of usefulness for only rehabilitation service functions. Minicomputer users rated computer use for rehabilitation services significantly lower than did microcomputer and main frame users. It is not clear why this latter finding is so. What was surprising about the overall findings was that in no instance were microcomputers rated significantly less satisfactory than either mini- or main frame computers.

**PROBLEMS RELATED TO COMPUTER USE**

A further set of analyses examined the problems the users have experienced with their systems. For these analyses, users with the three classes of computers were again compared. Table 13 presents data concerning all users and those having only a microcomputer, minicomputer, or main frame

TABLE 12

Mean Ratings of the Usefulness of Computers for Various Functions

| Type of Program | Mean Usefulness Microcomputer (N=231) | Minicomputer (N=86) | Main Frame (N=15) | All Users (N=864) |
|---|---|---|---|---|
| Administrative | 3.83* | 4.01 | 4.06 | 3.94 |
| Production | 3.24 | 3.52 | 3.56 | 3.52 |
| Rehab Services | 3.75 | 3.22 | 3.78 | 3.54 |
| Clerical | 3.73 | 3.80 | 3.85 | 3.78 |
| Program Evaluation | 3.28 | 3.36 | 3.67 | 3.46 |
| Residential | 3.04 | 3.10 | 3.61 | 3.18 |

* Items were rated on a scale of 1 (little usefulness) to 5 (extremely useful)

TABLE 13

Percentages of All Users and Those With Only Micro-, Mini- or Main Frame Computers Experiencing Various Computer Related Problems

| Type of Problem | Type of Computer User | | | |
|---|---|---|---|---|
| | Microcomputer | Minicomputer | Main Frame | All Users |
| Lack of adequate software | 53% | 48% | 32% | 45% |
| Inadequate training | 50% | 31% | 11% | 37% |
| Lack of support from computer vendor | 24% | 20% | 5% | 20% |
| Equipment breakdowns | 19% | 15% | 16% | 17% |
| Took a long time to become proficient | 37% | 27% | 21% | 28% |
| System is too limited to meet needs | 30% | 21% | 21% | 27% |
| Cost of software is unexpectedly high | 25% | 35% | 21% | 25% |
| Cost of peripherals is unexpectedly high | 24% | 22% | 21% | 16% |
| Maintenance costs are very high | 10% | 26% | 11% | 16% |

computer. As can be seen by examining the column for all users, the most frequently cited computer related problem concerned a lack of adequate software. The next most frequently cited problem concerned a lack of adequate training. Interestingly, equipment breakdowns and high maintenance costs were the least often cited problems. A number of comparisons between micro-, mini-, and main frame computer users were significant. Main frame users were signficantly less likely to cite a lack of adequate software or a lack of adequate support from the vendor as problems. Microcomputer users were more likely to cite a lack of adequate training, excessively long training times, and system limitations as problems. Minicomputer users were significantly more likely to cite high software and maintenance costs as problems. In general, main frame users had a lower frequency of problems than the others. The overall findings suggest that most of the problems encountered by the computer users concern a lack of good software, difficulty in training people to use computers, and with hidden or unexpected costs.

Another set of analyses examined the types of computer related problems experienced by facilities which use Timesharing/Service Bureau arrangements as opposed to computer Owners/Leasers. As can be seen in Table 14, in seven of the eight areas a significantly smaller percentage of facilities using timeshare/service bureau arrangements indicated that they had problems. The two groups were comparable only in indicating that their systems were too limited. The finding that facilities which use timesharing/service bureau arrangements experience significantly fewer computer related problems is interesting because it highlights an advantage of this form of computer use. This seems to offset the disadvantage of this form of computer use involving an apparent lack of software suitable for use by rehabilitation facilities.

TABLE 14

Chi Square Analyses Comparing Frequency of Computer Related Problems Experienced by Facilities Which Own/Lease a Computer Versus Those Which Have a Timeshare/Service Bureau Arrangement

| Problem with Computer System | N (%) Own/Lease | N (%) Timeshare/ Serv Bureau | $\chi^2$ | p |
|---|---|---|---|---|
| Lack of Adequate Software | 206(46%) | 43(32%) | 8.13 | <.01 |
| Inadequate Training | 170(38%) | 29(22%) | 12.18 | <.001 |
| Lack of Vendor Support | 90(20%) | 16(12%) | 4.59 | <.05 |
| Equipment Breakdowns | 85(19%) | 7(5%) | 15.72 | <.001 |
| Took a very long time to learn system | 134(30%) | 21(16%) | 10.12 | <.01 |
| System is too limited for needs | 112(25%) | 34(25%) | .06 | >.05 |
| Software is unexpectedly expensive | 130(29%) | 19(14%) | 12.23 | <.001 |
| Peripheral equipment is unexpectedly expensive | 112(25%) | 13(10%) | 13.65 | <.001 |
| Maintenance costs are very high | 81(18%) | 11(8%) | 8.24 | <.01 |

## COMPARISONS OF FACILITIES WITH AND WITHOUT SHELTERED EMPLOYMENT SERVICES

A series of analyses compared the extent and type of computer use by facilities which offer sheltered employment services and those without such services. Of the 1586 facilities which responded to the survey, 828 (52%) have sheltered employment services and 758 (48%) do not. As was indicated in Table 2, those facilities with sheltered employment are more likely to have a computer than ones without such services (59% vs 50%). It was assumed that such facilities would also differ in the way in which they use computers, particularly in terms of production uses.

There are 488 facilities in the sample of computer users that offer sheltered employment services and 374 which do not. The group without sheltered employment was found to have spent significantly more for both the purchase costs ($54,970 vs $29,539, $F = 9.65$, $p < .01$) and annual operating expenses ($19,927 vs $12,570, $F = 14.64$, $p < .01$) of their computer systems. The groups did not differ in terms of the cost of software, however. These groups also differ in the number of clients they serve annually (895 for those with sheltered employment versus 1337 for those without; $F = 8.37$, $p < .01$) but not in terms of the number of employees in the facility or in the size of the annual operating budget.

A series of Chi-Square tests compared facilities with and without sheltered employment on how they use computers. Table 15 shows the results of those comparisons. As can be seen, those facilities with sheltered employment use computers for accounting and bookkeeping to a greater extent than those without. More of the facilities with sheltered employment also use computers to perform their payroll functions. As expected, significantly more of the facilities with a sheltered employment component use computers for Production functions (Production Control, Contract Bidding, Cost Control, and Production

TABLE 15

Chi Square Analyses Comparing Frequency of Computer Use for Various Applications By Facilities Which Do and Do Not Provide Sheltered Employment Services

| Computer Application | N (%) with Sheltered Employment | N (%) w/o Sheltered Employment | $\chi^2$ | p |
|---|---|---|---|---|
| **Administrative Uses** | | | | |
| Accounting | 361(74%) | 248(66%) | 5.85 | <.05 |
| Bookkeeping | 337(69%) | 218(58%) | 11.55 | <.01 |
| Word Processing | 234(48%) | 196(52%) | 2.59 | >.05 |
| Mailing Lists | 249(51%) | 211(56%) | 1.31 | >.05 |
| Spreadsheets | 195(40%) | 128(34%) | 2.66 | >.05 |
| Staff Payroll | 332(68%) | 196(52%) | 22.79 | <.001 |
| Client Payroll | 322(66%) | 90(24%) | 148.33 | <.001 |
| Program Evaluation | 161(33%) | 135(36%) | .45 | >.05 |
| **Production Uses** | | | | |
| Production Control | 73(15%) | 34(9%) | 6.15 | <.02 |
| Production Scheduling | 44(9%) | 38(10%) | .01 | >.05 |
| Inventory | 127(26%) | 98(26%) | .02 | >.05 |
| Motion-time Study | 34(7%) | 19(5%) | 1.42 | >.05 |
| Contract Bidding | 59(12%) | 19(5%) | 10.81 | <.01 |
| Cost Control | 132(27%) | 64(17%) | 12.08 | <.01 |
| Production Records/ Reports | 181(37%) | 83(22%) | 21.04 | <.001 |
| **Rehabilitation Services Uses** | | | | |
| Assessment (Vocational/ Psychological) | 107(22%) | 105(28%) | 3.27 | >.05 |
| Adjustment(Personal/ Social) | 68(14%) | 41(11%) | .66 | >.05 |
| Independent Living Training | 44(9%) | 38(10%) | 1.31 | >.05 |
| Job Skill Training | 78(16%) | 60(16%) | 1.60 | >.01 |

Reporting) than do the other facilities. This was expected because facilities which offer sheltered employment have a need to perform various production tasks that facilities without a production component do not have. The same is true for the Client Payroll function. These two groups do not significantly differ in the number of facilities using computers for Rehabilitation Services.

The class of computer that these two groups use was examined. It was found that the facilities which offer sheltered employment are significantly less likely to own a microcomputer (39% vs. 57%; $\chi^2 = 26.92$, $p < .001$) or a main frame computer (10% vs. 5%; $\chi^2 = 7.34$, $p < .01$), and are less likely to use a timesharing arrangement (16% vs 23%; $\chi^2 = 7.01$, $p < .05$).

Comparisons of the training and information needs of facilities with and without sheltered employment were also made. It was found that more facilities with sheltered employment perceive a need for training in computer system management (66% vs 55%; $\chi^2 = 10.14$, $p < .01$) and see a need for customized software for administrative uses (71% vs 60%, $\chi^2 = 10.16$, $p < .01$), production uses (71% vs 40%; $\chi^2 = 81.83$, $p < .001$), rehabilitation services uses (76% vs 63%, $\chi^2 = 17.82$, $p < .01$), and for residential program uses (44% vs 33%, $\chi^2 = 9.22$, $p < .05$). The facilities with sheltered employment programs also indicated a greater willingness to send staff to short term training programs (71% vs 57%; $\chi^2 = 16.42$, $p < .001$).

Facilities with sheltered employment services also have a higher incidence of having specialized programs written for them (for Production, Rehabilitation Services, and Residential Programs ( all $\chi^2$s $> 6.5$, $p < .02$) by programmers who are not employed by them. This information, in conjunction with the finding that the annual operating expenditures are significantly less than for facilities without sheltered employment, probably indicates that

sheltered facilities are less likely to employ computer programmers. Analyses of the computer related problems encountered by these two groups indicated that in only one area was there a difference. The group offering sheltered employment had a significantly smaller number of facilities which indicated that it took a very long time for staff to become proficient with their computer system. Only 24% of those facilities indicated that this was a problem, whereas 31% of the facilities without sheltered employment did. This may be due to the fact that the facilities without sheltered employment are less likely to use microcomputers. Such facilities may be less likely to either spend money for training or to receive training from the vendor as part of a purchasing agreement.

The final set of analyses comparing these two groups examined the types of services they offer. The results of those analyses are presented in Table 16, which includes the percentages of the facilities, with and without sheltered employment, providing each type of service and the results of Chi-Square tests comparing the groups. As can be seen, in only two areas (Psychological Testing & Medical Services) are the two groups comparable. For all other items, the group which provides sheltered employment has a significantly higher percentage of facilities which provide the service.

**COMPARISONS OF FACILITIES WITH AND WITHOUT MEDICAL SERVICES**

A series of analyses also examined differences in computer use between facilities which offer any type of medical services (Medical facilities) and those which do not offer those services (Nonmedical facilities). Of the 1586 facilities which responded to the survey, 37% offer medical services and the remaining 63% do not. Among the Medical facilities, 69% use computers, whereas, among Nonmedical facilities only 46% use computers ($\chi^2 = 79.92$, $p < .001$). Almost half of the computer users offer medical services

TABLE 16

Chi Square Analyses Comparing Facilities Which Do and Do Not Provide Sheltered Employment on the Frequency With Which They Provide Other Rehabilitation Services

| Rehabilitation Service | N (%) with Sheltered Employment | N (%) w/o Sheltered Employment | Chi Square | p |
|---|---|---|---|---|
| Vocational/Work Evaluation | 410(84) | 207(55) | 87.74 | <.001 |
| Psychological Testing | 278(57) | 214(57) | 1.36 | >.05 |
| Personal/Social Adjustment | 400(82) | 226(60) | 49.28 | <.001 |
| Work Adjustment Training | 444(91) | 162(43) | 232.32 | <.001 |
| Occupational Skill Training | 346(71) | 150(40) | 85.28 | <.001 |
| On-The-Job Training | 346(71) | 132(35) | 110.36 | <.001 |
| Job-Seeking-Skills Training | 381(78) | 173(46) | 95.39 | <.001 |
| Job Placement Services | 395(81) | 154(41) | 144.87 | <.001 |
| Work Activities | 420(86) | 124(33) | 249.79 | <.001 |
| Independent Living Training | 317(65) | 173(46) | 32.08 | <.001 |
| Daily Living Skills Training | 361(74) | 207(55) | 32.98 | <.001 |
| Recreation | 307(63) | 192(51) | 14.76 | <.01 |
| Medical | 220(45) | 180(48) | 4.05 | >.05 |
| Residential | 220(45) | 113(30) | 20.56 | <.001 |

whereas only 25% of the nonusers have such services.

The first set of analyses comparing these groups, which can be seen in Table 17, compared the size of these groups on a number of dimensions. As was surmised, medical facilities serve over twice as many clients yearly, average over four times as many employees and have annual budgets almost four times as large as do nonmedical facilities. Medical facilities also spend significantly more money on the purchase (both hardware and software) and operation of computer systems as can be seen in Table 18. The results of analyses of variance used to examine these data indicated that these differences were all statistically signficant (all $Fs > 5.29$, $p < .05$).

Chi-square tests were used to determine whether these groups differ in the way they use computers. The results of those analyses are presented in Table 19. As can be seen, fewer Medical facilities use computers for Client Payroll functions, but more of them use computers for Accounting, Word Processing, Inventory, and a number of Rehabilitation Services (Personal/Social Adjustment, Independent Living Training, Job Skill Training). Overall, the differences in the way these groups use computers are relatively small.

Further chi-square analyses revealed a variety of other significant differences between these two groups. For instance, it was found that more medical facilities own minicomputers (28% vs 20%) and main frame computers (9% vs 5%) than nonmedical facilities. Analyses of software and training needs revealed that fewer medical facilities indicate a need for customized software for client payroll (52% vs 63%) but more of them need software for residential programs (45% vs 34%). The medical facilities are also more favorable to local computer training opportunities (54% vs 47%) and are more willing to send staff to short term training programs (69% vs 61%). Medical

TABLE 17

Summaries of Analyses of Variance Comparing Medical and Nonmedical Facilities on Number of Clients Served Annually, Number of Employees, and Size of Annual Budget

| Source | Group Mean | df | Mean Squares | F | p |
|---|---|---|---|---|---|
| | | Number of Clients | | | |
| Between | | 1 | 124,460,816 | 23.04 | <.001 |
| Medical | 1791 | | | | |
| Nonmedical | 946 | | | | |
| Within | | 739 | 5,401,945 | | |
| | | Number of Employees | | | |
| Between | | 1 | 8,481,620 | 160.04 | <.001 |
| Medical | 266 | | | | |
| Nonmedical | 59 | | | | |
| Within | | 794 | 52,995 | | |
| | | Annual Budget | | | |
| Between | | 1 | 917,412,489,350 | 120.04 | <.001 |
| Medical | $3,329,376 | | | | |
| Nonusers | $1,261,077 | | | | |
| Within | | 1205 | 7,642,556,559 | | |

TABLE 18

Mean Costs of Hardware, Software, and Annual Operating Expenses for Medical and Nonmedical Facilities

| Type of Facility | N | Type of Expense | | |
|---|---|---|---|---|
| | | Hardware Cost | Software Cost | Annual Operating Cost |
| Medical | 587 | $85,271 | $5,070 | $32,314 |
| Nonmedical | 999 | $37,802 | $4,280 | $16,266 |

TABLE 19

Chi Square Analyses Comparing Frequency of Computer Use For Different Applications by Medical and Nonmedical Facilities

| Computer Application | Medical Facility | Nonmedical Facility | $x^2$ | p |
|---|---|---|---|---|
| **Administrative Uses** | | | | |
| Accounting | 434(74%) | 669(67%) | 4.82 | <.05 |
| Bookkeeping | 393(67%) | 619(62%) | 2.97 | >.05 |
| Word Processing | 323(55%) | 460(46%) | 7.25 | <.01 |
| Mailing Lists | 329(56%) | 509(51%) | 1.86 | >.05 |
| Spreadsheets | 229(39%) | 360(36%) | .91 | >.05 |
| Staff Payroll | 364(62%) | 599(60%) | .60 | >.05 |
| Client Payroll | 235(40%) | 549(55%) | 19.24 | <.001 |
| Program Evaluation | 211(36%) | 330(33%) | .47 | >.05 |
| **Production Uses** | | | | |
| Production Control | 59(10%) | 140(14%) | 2.44 | >.05 |
| Production Scheduling | 65(11%) | 90(9%) | .81 | >.05 |
| Inventory | 170(29%) | 230(23%) | 4.29 | <.05 |
| Motion-time Study | 29(5%) | 70(7%) | 1.81 | >.05 |
| Contract Bidding | 47(8%) | 100(10%) | .47 | >.05 |
| Cost Control | 135(23%) | 220(22%) | .13 | >.05 |
| Production Records/ Reports | 170(29%) | 320(32%) | 1.17 | >.05 |
| **Rehabilitation Services Uses** | | | | |
| Assessment (Vocational/ Psychological) | 158(27%) | 230(23%) | 2.00 | >.05 |
| Adjustment(Personal/ Social) | 88(15%) | 100(10%) | 4.05 | <.05 |
| Independent Living Training | 70(12%) | 70(7%) | 4.26 | <.05 |
| Job Skill Training | 117(20%) | 130(13%) | 7.19 | <.01 |

facilities are also more likely to have employed a consultant to assist in the development of their computer system (43% vs 36%). Finally, medical facilities are more likely to have had an employee develop software for them in administrative, rehabilitation services, and residential programs. This finding, coupled with the finding that medical facilities spend over twice as much money on annual operating expenses, probably indicates that medical facilities are more likely to employ their own computer programmers.

The final set of analyses comparing these groups examined the types of services they provide. As can be seen in Table 20, there are a number of differences between the groups in the types of services they offer. For 11 of the 14 services listed in the table, a significantly higher percentage of medical facilities provide the service than do nonmedical facilities. In no instance is the reverse true.

**ANALYSES OF FACILITIES WHICH CURRENTLY DO NOT USE COMPUTERS**

One of the principle questions of interest concerning the 722 Nonusers that responded to the questionnaire was whether they planned to purchase a computer within the next 18 months. It was assumed that any facility that did not intend to purchase a computer within that time frame was probably not serious about purchasing one. In response to that question, 27% stated that they would definitely purchase a computer within the next 18 months, 43% said they may purchase one, and 24% stated that they definitely would not purchase one. The latter group was asked why they would not be purchasing a computer. A summary of their responses are presented in Table 21. As can be seen, the lack of financial resources is the primary reason that this group will not be purchasing a computer within the next 18 months. Only 15% of the respondents indicated that they are not convinced that computers could benefit their facility.

TABLE 20

Chi Square Analyses of Frequency of Rehabilitation Services Provided by Medical and Nonmedical Facilities

| Rehabilitation Service | N (%) of Medical | N (%) of Nonmedical | Chi Square | p |
|---|---|---|---|---|
| Vocational/Work Evaluation | 446(76) | 679(68) | 7.19 | <.05 |
| Psychological Testing | 470(80) | 380(38) | 152.40 | <.001 |
| Personal/Social Adjustment | 505(86) | 609(61) | 69.19 | <.001 |
| Work Adjustment Training | 434(74) | 669(67) | 4.81 | <.05 |
| Occupational Skill Training | 399(68) | 490(49) | 32.99 | <.001 |
| On-The-Job Training | 352(60) | 509(51) | 7.97 | <.05 |
| Job-Seeking-Skills Training | 382(65) | 639(64) | 1.05 | >.05 |
| Job Placement Services | 376(64) | 629(63) | .05 | >.05 |
| Sheltered Employment | 317(54) | 589(59) | 1.72 | >.05 |
| Work Activities | 399(68) | 579(58) | 9.51 | <.05 |
| Independent Living Training | 434(74) | 410(41) | 92.83 | <.001 |
| Daily Living Skills Training | 493(84) | 500(50) | 104.84 | <.001 |
| Recreation | 458(78) | 400(40) | 127.99 | <.001 |
| Residential | 317(54) | 250(25) | 73.40 | <.001 |

TABLE 21

Reasons Why Facilities May Not or Will Not Be Purchasing A Computer Within Next 18 Months

| Reason For Not Purchasing | % of Facilities |
|---|---|
| Lack of financial resources | 71% |
| Lack of Experienced Personnel | 35% |
| Not Convinced of Benefits | 15% |
| Insufficient Knowledge of Computers | 31% |
| Other | 11% |

The facilities which stated that they either would (the " Yes" group) or might (the "Maybe" group) be purchasing a computer within the next 18 months were asked to indicate how they planned to use these machines. The responses, which can be seen in Table 22, were very similar to those of current computer users. The heaviest use is anticipated to be for administrative functions with considerably less use expected for production and rehabilitation services. These groups were largely comparable in how they plan to use computers except that significantly more of the Yes group indicated that they will use them for word processing (65% vs 52%) and spreadsheet (52% vs 41%) functions.

These groups were also asked to indicate how much they anticipated spending for computer hardware, software, training, and consulting services. These data are presented in Table 23. Only facilities which actually included estimates of their anticipated expenditures were included in these analyses. As can be seen, the amounts that facilities expect to spend are very similar to those spent by current microcomputers users and timesharing/service bureau users (see Table 6). The total average expenditure is estimated to be almost $21,000, about 40% of which will be spent on software, training, and consulting.

The groups which will or may purchase a computer were also asked to indicate the anticipated source(s) of revenues for the purchase of their computer systems. The data relevant to this issue are presented in Table 24, where it can be seen that 60% of the facilities indicated that they would use operating revenues to fund at least some part of their purchase. Twenty four percent stated that they would use a special fund raiser, 44% would use grant funding, 45% would use donations (either money or equipment), and 11% would use some "other" source of funding. These figures

TABLE 22

Anticipated Computer Use in Administrative, Production, and Rehabilitation Services Applications by Nonuser Facilities Which Will or May Purchase a Computer

| ADMINISTRATIVE Application | % | PRODUCTION Application | % | REHABILITATION SERVICES Application | % |
|---|---|---|---|---|---|
| Accounting | 71%* | Production Control | 32% | Assessment (Vocational Evaluation, Psychological Testing, etc.) | 42% |
| Bookkeeping | 70% | Production Scheduling | 21% | | |
| Word Processing | 57% | Inventory | 51% | Adjustment (Personal, Social, Work) | 30% |
| Mailing Lists | 51% | Motion-Time Study | 23% | | |
| Spreadsheets (Business Projections) | 45% | Contract Bidding | 33% | Job Placement | 23% |
| | | Cost Control | 43% | Residential | 15% |
| Staff Payroll | 53% | | | Independent Living Training | 22% |
| Client Payroll | 54% | Production Records/Reports | 52% | Job Skill Training | 27% |
| Program Evaluation | 63% | Other | 5% | Other | 6 |
| Other | 17% | | | | |

* Percentage of Nonusers desiring to employ computers for this application.

TABLE 23

Anticipated Expenditures for Hardware, Software, Training, and Consultation by Facilities Which Definitely Will or May Purchase a Computer (N=470)

| Item | Mean Expenditure | Standard Deviation |
|---|---|---|
| Hardware | $12,926 | $18,623 |
| Software | $5,239 | $11,201 |
| Training | $1,573 | $5,022 |
| Consultants | $1,035 | $3,953 |
| Total | $20,773 | |

TABLE 24

Anticipated Sources of Revenue for Facilities Which Definitely Will or May Purchase a Computer

| Revenue Source | % Using Source |
|---|---|
| Operating Revenues | 60% |
| Special Fundraising | 24% |
| Grant Funding | 44% |
| Donations | 45% |
| Other | 11% |

suggest that many facilities will probably attempt to use multiple funding strategies to obtain their computer equipment.

As was indicated in Table above, facilities which do not currently have a computer tend to be signficantly smaller and have less financial resources than computer users. A similar set of analyses was also conducted to determine whether the facilities considering the purchase of a computer system (the "Yes" and "Maybe" facilities) might be larger than those which do not intend to purchase one (the "No" facilities). As can be seen in Table 25, these groups are comparable in the number of clients that they serve annually but they differ significantly in the number of people they employ and in their annual budgets. The facilities which are considering the purchase of a computer employ more people and have larger budgets than facilities which are not considering such a purchase.

The final set of analyses compared the types of services provided by the Yes/Maybe facilities with those provided by the No facilities. As can be seen in Table 26, for 10 of the 15 services listed in the table, a significantly higher percentage of the Yes/Maybe group provides the service. This finding, plus those presented in Table 25, clearly reveal that the facilities which are currently contemplating a computer purchase tend to be larger and to provide a wider variety of services than facilities which are not considering buying such equipment.

## SUMMARY AND CONCLUSIONS

Although there was a substantial amount of data analyzed from this survey, there are a number of findings which stand out. Foremost among these is the dramatic increase in computer ownership, particularly of microcomputers, which has occurred in the past two and one half to three

TABLE 25

Summaries of Analyses of Variance Comparing "Yes/Maybe" And "No" Groups on Number of Clients Served Annually, Number of Employees, and Size of Annual Budget

| Source | Group Mean | df | Mean Squares | F | p |
|---|---|---|---|---|---|
| | | Number of Clients | | | |
| Between | | 1 | 126,884 | .60 | >.05 |
| Yes/Maybe | 614 | | | | |
| Nonusers | 581 | | | | |
| Within | | 508 | 211,473 | | |
| | | Number of Employees | | | |
| Between | | 1 | 560,125 | 3.71 | <.055 |
| Users | 58 | | | | |
| Nonusers | 36 | | | | |
| Within | | 598 | 15,089 | | |
| | | Annual Budget | | | |
| Between | | 1 | 1,874,404,510 | 6.32 | <.02 |
| Users | $1,171,073 | | | | |
| Nonusers | $722,938 | | | | |
| Within | | 508 | 296,610,330 | | |

TABLE 26

Chi Square Analyses of Frequency of Rehabilitation Services
Among Nonusers Which May and Will Not
Purchase A Computer System Within the Next 18 Months

| Rehabilitation Service | N (%) of Yes/Maybe Group | N (%) No Group | Chi Square | p |
|---|---|---|---|---|
| Vocational/Work Evaluation | 325(63) | 98(57) | 1.49 | >.05 |
| Psychological Testing | 165(32) | 45(26) | 2.28 | >.05 |
| Personal/Social Adjustment | 320(62) | 96(56) | 1.69 | >.05 |
| Work Adjustment Training | 325(63) | 91(53) | 4.29 | <.05 |
| Occupational Skill Training | 196(38) | 50(29) | 4.11 | <.05 |
| On-The-Job Training | 217(42) | 64(37) | 1.40 | >.05 |
| Job-Seeking-Skills Training | 289(56) | 72(42) | 8.85 | <.01 |
| Job Placement Services | 273(53) | 65(38) | 10.12 | <.01 |
| Sheltered Employment | 273(53) | 65(38) | 10.41 | <.01 |
| Work Activities | 304(59) | 84(49) | 5.28 | <.05 |
| Independent Living Training | 237(46) | 69(40) | 1.97 | <.05 |
| Daily Living Skills Training | 289(56) | 81(47) | 4.22 | <.05 |
| Recreation | 248(48) | 76(44) | .77 | >.05 |
| Medical | 144(28) | 33(19) | 4.73 | <.05 |
| Residential | 139(27) | 31(18) | 6.03 | <.05 |

years. Only 31% of Miller's (1981) users owned a computer, whereas, 66% of the users in this study do. Also, only 12% of Miller's users had a microcomputer, whereas, 47% of the users in the present study do. This dramatic increase in the number of computer owners no doubt resulted from the fact that microcomputers are relatively inexpensive to purchase and operate (see Table 6) and yet are quite capable of providing very satisfactory performance. The latter point is illustrated by the finding that the degree of satisfaction with the computer system was as high for microcomputers as for minicomputers and main frames. There were some drawbacks to microcomputer use which were found, however. Microcomputer owners were more likely to cite inadequate training, the fact that it takes a long time to learn to use the system, and system limitations as problems.

One of the implications of the dramatic increase in computer ownership seems to be that there will be an increase in the number of computer programs written to fulfill the needs of rehabilitation facilities. Evidence in support of this can be seen in the finding that computer owners were more likely to have had custom programs developed for them than were facilities which have only a Timesharing/Service Bureau arrangement. It seems likely that future program development will focus largely upon production and rehabilitation services uses, as well as, on program evaluation and client payroll functions. The latter assumption is based upon the finding that the heaviest use of computers at present is for admininstrative uses. This suggests that the greatest opportunity and need for program development will be in production and rehabilitation services uses.

Another clear finding of the present study is that rehabilitation

facilities have a great need for information concerning computer use. More than 60% of the respondents that are currently using computers indicated a need for training on such things as computer system management and computer uses and applications. More than 30% of the users indicated a need for training on computer selection and over half need information on computer programming. There is also a strong need among current users for customized software for a variety of purposes. For instance, two thirds of the current users indicated a need for custom programs for administrative and production uses. Also, two thirds of the users expressed an interest in an introductory handbook on computer use in facilities and in the formation of a facility computer users network for the exchange of information.

Examination of the data from facilities which are currently not using computers indicated that a lack of financial resources was the primary reason given by those who may not or will not be purchasing a computer in the near future. A lack of experienced personnel and insufficient knowledge of computers were also cited by approximately one third of this group as reasons they may not purchase a computer system. Responses from those facilities which either will or may purchase a computer within the next 18 months suggest that most of them will be purchasing microcomputers or minicomputers. The majority of these facilities have also indicated that they have budgeted for both training and professional consultation on the use of computers. Such planned expenditures seem well advised considering the fact that a lack of training and system limitations were frequently cited by microcomputer users.

# REFERENCES


Cimler, E.R. & Henderson, W.H. (1979) **The application of microcomputers to sheltered workshop operation.** Seattle, Washington: Northwest Association of Rehabilitation Industries.

Cole, T.A. (1983) Computers in rehabilitation: Another way. **Vocational Evaluation and Work Adjustment Bulletin,** Spring, 4-6.

Crimando, W. & Sawyer, H. (1983) Microcomputer applications in adjustment services programming. **Vocational Evaluation and Work Adjustment Bulletin,** Spring, 7-12.

Eighth Institute on Rehabilitation Issues (1981) **Computer assisted rehabilitation service delivery.** West Virginia Research and Training Center.

Growick, B. (1983) **Computers in vocational rehabilitation: Current trends and future applications.** Washington, D.C.: National Rehabilitation Information Center.

Leicht, C.L. (1982) Computer use in sheltered workshops. Unpublished Master's Thesis, University of Wisconsin - Stout, Menomonie, WI 54751.

McCray, P. & Blakemore, T.F. (1985) **National Directory of Rehabilitation Facilities Using Computers.** Menomonie, Wisconsin: Research and Training Center, Stout Vocational Rehabilitation Institute.

Miller, L.C. (1981) Microcomputer use in sheltered workshops. Seattle, Washington: Rehabilitation Workshop Administration Training Center, University of Seattle.

Nave, G., Browning, P., & Carter, J. (1983) **Computer technology for the handicapped in special education and rehabilitation: A resource guide.** Eugene, Oregon: University of Oregon - International Council for Computers in Education.

Pogorelc, R. (1984) Computers in rehabilitation facilities: A management perspective. In **The National Directory of Rehabilitation Facilities Using Computers.** Menomonie, Wisconsin: Research and Training Center, University of Wisconsin - Stout.

Spence, J., Woods, J.N., & Young, P.L. (1984) The computer: Expanded uses in a sheltered workshop. **Journal of Rehabilitation,** July/August/Spetember, 64-65.

BEST COPY AVAILABLE

# APPENDIX A

BEST COPY AVAILABLE

rfc

# Survey of Computer Use in Rehabilitation Facilities

## Section I

rfc

LABEL HERE

A. CURRENT COMPUTER USE

(✓) Appropriate Column

| | Yes | No |
|---|---|---|
| 1. Does your facility currently use a computer(s) for any purpose? | ___ | ___ |

If you answered NO, please skip to Section II, which is on the last page of this survey.

If you answered YES, continue with questions 2-24 below.

**RETURN ENTIRE SURVEY**

2. Below is a list of ways in which computers can be used. Please mark each category as it applies to your facility.

| ADMINISTRATIVE | Yes | No |
|---|---|---|
| Accounting | ___ | ___ |
| Bookkeeping | ___ | ___ |
| Word Processing | ___ | ___ |
| Mailing Lists | ___ | ___ |
| Spreadsheets (Business Projections) | ___ | ___ |
| Staff Payroll | ___ | ___ |
| Client Payroll | ___ | ___ |
| Program Evaluation | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |
| _____ | ___ | ___ |

| PRODUCTION | Yes | No |
|---|---|---|
| Production Control | ___ | ___ |
| Production Scheduling | ___ | ___ |
| Inventory | ___ | ___ |
| Motion-Time Study | ___ | ___ |
| Contract Bidding | ___ | ___ |
| Cost Control | ___ | ___ |
| Production Records/Reports | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |
| _____ | ___ | ___ |

| REHABILITATION | Yes | No |
|---|---|---|
| Assessment (Vocational Evaluation, Psychological Testing, etc.) | ___ | ___ |
| Adjustment (Personal, Social, Work) | ___ | ___ |
| Job Placement | ___ | ___ |
| Residential | ___ | ___ |
| Independent Living Training | ___ | ___ |
| Job Skill Training | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |
| _____ | ___ | ___ |

B. COMPUTER HARDWARE/EQUIPMENT

3. Indicate in each column to the right the number of computers in each class your facility owns or leases. Use the number 0 (zero) if you have none.

| CLASS OF COMPUTER | Own | / Lease |
|---|---|---|
| Microcomputer (e.g., Apple II or Radio Shack) | ___ | ___ |
| Minicomputer (32 bit multi-user) | ___ | ___ |
| "Main Frame" Computer | ___ | ___ |

4. List the name and models of each computer used in your facility (e.g., IBM 3250, Apple II, etc.) (Skip this question if you have a timesharing arrangement).

| NAME | MODEL |
|---|---|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

| | Yes | / No |
|---|---|---|
| 5. Do you rent time on a timesharing system? | ___ | ___ |
| 6. Does your facility employ a Data Processing Bureau to perform any computing services for you (e.g., bookkeeping, mailing lists, etc.)? | ___ | ___ |

C. COSTS OF COMPUTER USE

| | Amount |
|---|---|
| 7. Please estimate the total direct purchase cost of all of your computer hardware (e.g., computers, modems, printers, monitors, etc.) | $_____ |
| 8. Please estimate the total purchase price of all of your computer software (programs). | $_____ |
| 9. Please estimate the total of all other annual operating expenses (e.g., lease of equipment, time-sharing, cost of supplies, personnel costs, etc.) resulting from computer use in your facility. | $_____ |

1

BEST COPY AVAILABLE

D. TRAINING NEEDS OF FACILITY

10. Indicate which items you feel would help your facility make better use of existing or future computer equipment and software.

a. Short term regional training programs in:

| SUBJECT AREAS | Yes | No |
|---|---|---|
| 1. Computer Selection | ___ | ___ |
| 2. Computer Uses/Application | ___ | ___ |
| 3. Computer Programming | ___ | ___ |
| 4. Computer System Management | ___ | ___ |

b. Software customized for rehabilitation facilities for:

| | | |
|---|---|---|
| 1. Administrative Uses | ___ | ___ |
| 2. Production Uses | ___ | ___ |
| 3. Rehabilitation Uses | ___ | ___ |
| 4. Residential Program Uses | ___ | ___ |
| 5. Other (Specify) _____ | ___ | ___ |

c. A rehabilitation facility user's network (with a directory of facility computer users you could contact for assistance). ___ ___

d. An introductory handbook describing how rehabilitation facilities can use computers in their overall operations. ___ ___

e. Other (Specify) _____ ___ ___

11. Please rank the importance (1 = most important, 2 = next most important, etc.) of the following items for using computers in your facility.

RANK

_____ Short-term training

_____ Software customized for rehabilitation facilities

_____ A national directory of rehabilitation facilities using computers

_____ An introductory handbook on using computers in rehabilitation facilities

_____ Other (Specify) _____

12. Do you feel that the computer related training resources (e.g., continuing education courses, technical school courses, etc.) available in your area are adequate for your needs? Yes ___ No ___

13. Would your facility send a staff member(s) to short-term training sessions covering computer use in rehabilitation facilities? Yes ___ No ___

E. BACKGROUND INFORMATION

14. Did your facility use a paid computer consultant to assist you in developing your computer system? Yes ___ No ___

15. Has your facility used volunteers (e.g., a board member, a student, or a local computer club member) to help you select hardware, develop software, etc.? Yes ___ No ___

16. Indicate whether any of the employees of your facility have developed computer programs in any of the following areas:

| | Yes | No |
|---|---|---|
| Administration | ___ | ___ |
| Production | ___ | ___ |
| Rehabilitation Services | ___ | ___ |
| Residential Programs | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |

17. Indicate whether any programmers who are not employees of your facility have written programs for use in any of the following areas:

| | Yes | No |
|---|---|---|
| Administration | ___ | ___ |
| Production | ___ | ___ |
| Rehabilitation Services | ___ | ___ |
| Residential Programs | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |

18. Rate the usefulness of computers, based on your own first-hand experience on a scale of 1 (little usefulness) to 5 (extremely useful). Use "N/A" for uses with which you have no direct experience.

RATING

_____ Administrative
_____ Production
_____ Rehabilitation Services
_____ Clerical
_____ Program Evaluation
_____ Residential
_____ Other (Specify) _____

(Continued left column, page 3)



BEST COPY AVAILABLE

E. BACKGROUND INFORMATION (Continued)

19. Indicate whether you have had any significant problems with your computer system:

| | Yes | No |
|---|---|---|
| a. Lack of adequate software | ___ | ___ |
| b. Inadequate training | ___ | ___ |
| c. Lack of support from computer vendor | ___ | ___ |
| d. Equipment breakdowns | ___ | ___ |
| e. Took a very long time for staff to become proficient with system | ___ | ___ |
| f. System is too limited to do what we need | ___ | ___ |
| g. Cost of software is unexpectedly high | ___ | ___ |
| h. Cost of peripheral equipment is unexpectedly high | ___ | ___ |
| i. Maintenance costs are very high | ___ | ___ |
| j. Other (Specify) _____ | ___ | ___ |

F. GENERAL FACILITY CHARACTERISTICS

20. How many clients did your facility serve in the last fiscal year? _____

21. How many fulltime employees (not including clients) does your facility have? _____

22. What was your annual budget? $_____

23. Indicate whether or not your facility provides the services listed below:

| | Yes | No |
|---|---|---|
| a. Vocational/Work Evaluation | ___ | ___ |
| b. Psychological Testing | ___ | ___ |
| c. Personal/Social Adjustment | ___ | ___ |
| d. Work Adjustment Training | ___ | ___ |
| e. Occupational Skill Training | ___ | ___ |
| f. On-The-Job Training | ___ | ___ |
| g. Job-Seeking Skills Training | ___ | ___ |
| h. Job Placement | ___ | ___ |
| i. Sheltered Employment | ___ | ___ |
| j. Work Activities | ___ | ___ |
| k. Independent Living Training | ___ | ___ |
| l. Daily Living Skills Training | ___ | ___ |
| m. Recreation | ___ | ___ |
| n. Medical Services (including OT, PT) | ___ | ___ |
| o. Residential | ___ | ___ |
| p. Other (Specify) _____ | ___ | ___ |

24. We will be sending you a follow-up questionnaire concerning further details about computer use in your facility in about 4-6 weeks. That questionnaire will take approximately 30 minutes to complete. Please list below your name, job title, and full facility address so that we can send the follow-up questionnaire directly to you personally.

Your Name _____ Job Title _____

Facility Name _____

Street Address _____

City/State _____ Zip _____

Phone Number (___) ___ - _____

Thank you very much for your cooperation. Please place the survey form in the enclosed postage-paid envelope and mail it to us by

_____

Research and Training Center, Stout Vocational Rehabilitation Institute, University of Wisconsin-Stout, Menomonie, WI 54751.



BEST COPY AVAILABLE

## Section B

**Complete this section only if your facility is not using computers at present.**

25. Please check the statement below which best describes your plans for computer use: (✓ one only)

a. We definitely will be purchasing/leasing a computer(s) within the next 18 months _____

b. We may or may not purchase/lease a computer within the next 18 months _____

c. We definitely will not be purchasing/leasing a computer within the next 18 months _____

26. If you checked b or c in the previous question, indicate why you may not or will not be purchasing computer equipment within the next 18 months.

| | Yes | No |
|---|---|---|
| a. Lack of financial resources | ___ | ___ |
| b. Lack of experienced personnel | ___ | ___ |
| c. Not convinced of the benefits of computers | ___ | ___ |
| d. Insufficient knowledge about computers | ___ | ___ |
| e. Other (Specify) _____ | ___ | ___ |

If you are certain you will not be purchasing/leasing a computer within the next 18 months, skip to Question 30.

27. If you anticipate possibly purchasing a computer, indicate how you plan to use it.

| | Yes | No |
|---|---|---|
| **ADMINISTRATIVE** | | |
| Accounting | ___ | ___ |
| Bookkeeping | ___ | ___ |
| Word Processing | ___ | ___ |
| Mailing Lists | ___ | ___ |
| Spreadsheets (Business Projections) | ___ | ___ |
| Staff Payroll | ___ | ___ |
| Client Payroll | ___ | ___ |
| Program Evaluation | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |

(Continued right column, this page)

| | Yes | No |
|---|---|---|
| **PRODUCTION** | | |
| Production Control | ___ | ___ |
| Production Scheduling | ___ | ___ |
| Inventory | ___ | ___ |
| Motion-Time Study | ___ | ___ |
| Contract Bidding | ___ | ___ |
| Cost Control | ___ | ___ |
| Production Records/Reports | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |
| **REHABILITATION** | | |
| Assessment (Vocational Evaluation, Psychological Testing, etc.) | ___ | ___ |
| Adjustment (Personal, Social, Work) | ___ | ___ |
| Job Placement | ___ | ___ |
| Residential | ___ | ___ |
| Independent Living Training | ___ | ___ |
| Job Skill Training | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |

28. How much money do you anticipate spending in each of the following areas within the next 18 months?

| | Amount |
|---|---|
| Computer Hardware | $_____ |
| Computer Software | $_____ |
| Computer Training | $_____ |
| Computer Consulting Services | $_____ |

29. What revenues will you use to purchase your computer equipment?

| REVENUE SOURCE | Yes | No |
|---|---|---|
| Operating Revenues | ___ | ___ |
| Special Fundraising | ___ | ___ |
| Grant Funding | ___ | ___ |
| Donations (equipment or money) | ___ | ___ |
| Other (Specify) _____ | ___ | ___ |



BEST COPY AVAILABLE

BEST COPY AVAILABLE

30. How many clients did your facility serve in the last fiscal year? _____

31. How many fulltime employees (not including clients) does your facility have? _____

32. What was your annual budget? $_____

33. Indicate whether or not your facility provides the services listed below:

| | Yes | No |
|---|---|---|
| a. Vocational/Work Evaluation | ___ | ___ |
| b. Psychological Testing | ___ | ___ |
| c. Personal/Social Adjustment | ___ | ___ |
| d. Work Adjustment Training | ___ | ___ |
| e. Occupational Skill Training | ___ | ___ |
| f. On-The-Job Training | ___ | ___ |
| g. Job-Seeking Skills Training | ___ | ___ |
| h. Job Placement | ___ | ___ |
| i. Sheltered Employment | ___ | ___ |
| j. Work Activities | ___ | ___ |
| k. Independent Living Training | ___ | ___ |
| l. Daily Living Skills Training | ___ | ___ |
| m. Recreation | ___ | ___ |
| n. Medical Services (including OT, PT) | ___ | ___ |
| o. Residential | ___ | ___ |
| p. Other (Specify) _____ | ___ | ___ |

You are finished with the questionnaire. Please insert it in the enclosed postage-paid envelope and mail it to us by _____

Research and Training Center, Stout Vocational Rehabilitation Institute, University of Wisconsin-Stout, Menomonie, WI 54751.

THANK YOU VERY MUCH FOR YOUR COOPERATION



BEST COPY AVAILABLE